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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/573,568

03/27/2006

Akihiko Kubota

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EXAMINER

STIMPERT, PHILIP EARL

ART UNIT

PAPER NUMBER

3746

NOTIFICATION DATE

DELIVERY MODE

10/15/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/573,568	Applicant(s) KUBOTA ET AL.	
	Examiner Philip Stimpert	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 December 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3 April 2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 5, 6, and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (US 5,816,783) in view of Fujikawa et al. (US 4,628,876).

4. Regarding claim 5, Oshima et al. teach a reciprocating compressor (see Fig. 2) comprising a hermetic container (10), a compressing element (12) accommodated in the hermetic container and compressing refrigerant gas (see abstract), the compressing element including a crankshaft (1) with a main shaft (1) and an eccentric section (1a) having respective axes, a block (4) forming a cylindrical cylinder (4a), a piston (2) reciprocating in the cylinder, a connecting rod (2c) connecting the eccentric section to the piston, and a balancing weight (indicated at 1, in Fig. 6A) which would balance

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vibrations produced by the piston and connecting rod. Oshima et al. also teach that the cylinder (4) is offset (see E in Fig. 6A) such that an axis line of the cylinder and an axis line of the main shaft do not cross each other. Oshima et al. do not teach that the balancing weight is deviated from a position exactly opposite the eccentric section axis. Fujikawa et al. teach an engine balancing system for a single cylinder engine with an offset between the axes of the drive shaft and cylinder (Fig. 7). Fujikawa et al. teach that this system includes a primary balancing weight and a counterbalancing weight having a center of gravity (C_1) that deviates a suitable distance from diametrically opposite the crank pin (15, see col. 4, ln. 48-62). Fujikawa et al. teach that this arrangement "is capable of lowering the vibromotive force acting in the direction of the center line of the cylinder to the same level as that prevailing in the engine" (col. 5, ln. 29-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the balancing system of Fujikawa et al. for that of Oshima et al., in order to reduce the vibromotive forces thereof. Such a deviated center of gravity will be less than 180 degrees from the eccentric section axis either positively or negatively in the rotating direction of the main shaft.

5. Regarding claim 6, Fujikawa et al. shows the piston in essentially top dead center position, and shows that the center of gravity of the balancing weight (C_1) is offset from the cylinder axis but not beyond a plane (perpendicular to the page) that includes the main shaft axis (O_1) and is parallel with the cylinder access.

6. Regarding claim 9, Oshima et al. teach that the crankshaft is generally vertical (Fig. 2).

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7. Regarding claim 10, Fujikawa et al. teach that the center of gravity of the balancing weight, the eccentric section axis, and the main shaft axis are not displaceable with respect to each other.

8. Regarding claim 11, Fujikawa et al. teach that balancing weight is provided such that the crankshaft and piston of Oshima et al. and the balancing weight (C_1) are arranged such that throughout reciprocation of the piston the eccentric axis (15), location opposite the eccentric axis (B_1) and counter weight center of gravity are arranged in that order (see Fig. 7, and direction of rotation A_1). This arrangement results in the location trailing the center of gravity by nearly 360° .

Response to Arguments

9. Applicant's arguments filed 3 August 2010 have been fully considered but they are not persuasive.

10. With respect to the amendment to the claims, the examiner maintains that the structure has not been defined to a sufficient extent as to define over a combination of Oshima and Fujikawa. As discussed above, "in the rotating direction" does not preclude the arrangement shown by Fujikawa. The examiner believes that language such as "said center of gravity of said balancing weight trails said eccentric section axis by less than 180° during rotation," or similar language would be sufficient to define the limitation. However, the examiner draws the applicant's attention to US PG PUB 2004/0211384 to Glinsner (Glinsner). Glinsner teaches in paragraph 32 that various angular positions of elements of a counterweight are possible, and that their optimization for the reduction of vibration in a reciprocating piston machine is a matter of

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ordinary experimentation. As such, even if the combination of Oshima and Fujikawa is overcome, the examiner believes that the invention as disclosed in the instant application is obvious in view of Glinsner.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US PGPUB 2004/0211384 to Glinsner (Glinsner) teaches varying the location of a counterweight center of gravity through experimentation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip Stimpert whose telephone number is (571)270-1890. The examiner can normally be reached on Mon-Fri 7:30AM-4:00PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/P. S./
Examiner, Art Unit 3746
8 October 2010